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The Abstract Editor is Dr. George Mannheimer, 41 West 51st Street, New York City. Prompt transmission to him of reprints or abstracts of papers on tuberculosis, sanatorium or board of health reports, etc., will promote their early publication in this section.

Abstracts should be sent typewritten on one side of the page only. They should be as concise and compact as the subject matter of the article warrants. They should be headed with a short title, and followed by the full title of the paper, author's name, journal, date, column and page.

The Influence of Smoke Abatement upon Tuberculosis.—It is a well established fact that sunlight is the most potent enemy of the tubercle bacillus. Moreover, it is also well known that the presence of dust or dirt in the air, smoke dust, for example, is detrimental to the sufferer from tuberculosis for obvious reasons. Light is not only destructive to the tubercle bacilli, but invigorates the system and enables one better to withstand the onslaughts of most diseases, and those of bacterial origin in particular. Accordingly, the action of sunlight is twofold and of inestimable value in one way or the other. These facts then bring us to the point, the influence of smoke abatement upon tuberculosis. In the *Sunday Observer* published in London, there is a weekly letter from a medical correspondent. In the issue of January 23, 1921, this correspondent in discussing the evil influence of a smoky atmosphere upon tuberculosis, declares that the principles evolved by Koch have been marvellously applied in New York. That is, by abolishing the smoke nuisance, the New York Board of Health has made of the city a city of light and thus immensely increased the chances for recovery of the tuberculous. The law for the abolition of smoke in New York came into effect in 1905 and it is stated that the results have been almost magical. The figures given in support of this statement are as follows. At about the beginning of the century pulmonary tuberculosis killed thirty-nine per ten thousand per annum in New York: in 1919 it killed thirteen. This signifies that in twenty years or thereabouts, the death rate from this disease has been reduced to one third of its former proportion.

It is argued that if measures for smoke abatement brought about this great change for the better in New York, similar measures would accomplish even more in London, where conditions with regard to smoke and dirt are infinitely worse. Pittsburgh has been cleaned, largely by means of smoke abatement measures, and there seems to be a consensus of opinion that the cleaner the air of a place is, the better it is for people suffering from bronchial and other respiratory affections, and perhaps especially for those afflicted with the pulmonary form of tuberculosis. But that a clear atmosphere is beneficial to health is obvious to all, and no longer should a smoke laden air be permitted in a civilized country. Why not have unpolluted air as well as unpolluted waters? A comparatively pure water supply has resulted almost in the abolition of some epidemic diseases and it is reasonable to suppose that a comparatively pure air might in course of time abolish certain other diseases. In any event, such an air is healthier and more pleasant by far and, moreover, is not very difficult of attainment.—*Editorial article, N. York M. J., April 6, 1921, cxiii, 542.*

Tuberculosis in New York City

Quarters Ending December 31, 1919 and 1920

		MANHATTAN	BRONX	BROOKLYN	QUEENS	RICHMOND	CITY
Population	1919	2,286,550	716,512	2,002,289	457,398	114,414	5,577,163
	1920	2,281,664	747,520	2,042,246	476,224	117,503	5,665,157
New cases	1919	2,103	508	907	239	37	3,794
	1920	1,906	336	1,014	304	54	3,614
Total cases in register	1919	17,449	3,583	7,212	1,525	267	30,036
	1920	15,505	3,490	7,030	1,576	318	27,919
New patients examined at clinic	1919	1,981	442	1,230	156	25	3,834
	1920	1,587	425	1,204	250	27	3,493
Cases under supervision	1919	130	143	368	8	5	654
	1920	182	20	390	19	7	618
Voluntary renovations	1919	386	73	221	97	42	819
	1920	257	86	177	275	26	821
Sputum examined	1919	5,790	1,588	2,766	484	98	10,726
	1920	5,062	1,198	2,375	446	107	9,188
Positive sputum	1919	1,133	314	515	102	14	2,078
	1920	965	166	464	109	24	1,728
Deaths from pulmonary tuberculosis	1919	693	161	453	83	28	1,418
	1920	585	123	448	105	23	1,284
Death rate per 1,000 of population	1919	1.20	0.89	0.99	0.72	0.97	1.01
	1920	1.02	0.65	0.87	0.88	0.78	0.90
Deaths all form of tuberculosis	1919	794	183	518	93	32	1,620
	1920	682	151	500	119	23	1,475
Death rate all forms	1919	1.38	1.01	1.03	0.81	1.11	1.15
	1920	1.19	0.80	0.97	0.99	0.23	1.03

—Weekly Bull., Dpt. of Health, N. Y. City, April 9, 1921, x, 117.

The Campaign against Tuberculosis.—Medical officers for the past twenty-five years have urged the case of prevention before that of cure, but governing authorities have not grasped this important fact. Patch-work systems have been preferred. The author stresses the importance of proper housing, demolition of slum areas, creation of open spaces and a pure milk supply. Large amounts are properly spent on child welfare work but a better social environment must also be created. The whole doctrine of public health is prevention. *—Some Observations on the Campaign against Tuberculosis, W. Robinson, Med. Officer, February 5, 1921.*

Statistics on the Prevention of Pulmonary Tuberculosis.—Statistics show that in spite of all that has been said and done for the prevention of tuberculosis, the efforts in regard to pulmonary tuberculosis have not been attended with the anticipated success. The decline in mortality from this cause dates from 1838, and has continued steadily ever since, down to 1913. Koch's discovery of the tubercle bacillus in 1882 does not seem to have affected it in any way. Comparing the average mortality per million living in the first six years of the period 1902 to 1913 with the last six years, in the air borne diseases, the following result is found: Pneumonia shows a decline

of 14 per cent, phthisis of 11.6 per cent, bronchitis of 10.68 per cent, and the four zymotic diseases (measles, scarlet fever, whooping cough, diphtheria) of 21 per cent. All these diseases are closely associated. The common cold is probably the most important connecting link between all respiratory infections. It is the means of disseminating air borne disease and of preparing the soil for further invasions or for the condition of carrier. The campaign against tuberculosis must be directed against the air borne diseases as a whole, and against the common cold in particular.—*Some Deductions from the Statistics on the Prevention of Pulmonary Tuberculosis, D. H. C. Given, Brit. M. J., February 12, 1921, 225.*

Courses in Tuberculosis.—Throughout the year the Ohio State Sanatorium will conduct short courses of ten days each, available to all physicians of Ohio without cost. The school is organized with confidence that opportunity for further knowledge of the diagnosis of chest diseases is imperatively needed and with optimism that the physicians will avail themselves of the facilities peculiarly accessible at the State Sanatorium. It is well known that the good diagnostician of tuberculosis is also a good diagnostician of the other common chest conditions. A large inspiration has been derived from the plea of the National Tuberculosis Association for the establishment of special medical courses. Such are held to be outstanding needs in the white plague campaign. It is hoped to blaze a trail in this work whereby other sanatoria similarly situated may perhaps follow, to fill the nation-wide need for better trained chest diagnosticians in general practice. This opportunity to review the intricate and finely balanced details of chest examination is believed highly valuable to every physician and is sure to bear fruit in more accurate physical examinations subsequent to attendance during the session of one of these courses. The courses offered by the United States Public Health Service at its various district headquarters (but restricted to ex-service physicians) have demonstrated their value and popularity by the numerous requests that have been made to open the courses to all physicians without restriction. We believe there is a general awakening as to the need of better training in the fight against tuberculosis. As one step in providing this training, the facilities for clinical and diagnostic instruction at the Ohio State Sanatorium are herewith made available for the physicians of Ohio.—*Pamphlet, issued by the Ohio State Sanatorium, Mount Vernon, O., School of Tuberculosis.*

Giant Cell Formation.—Sections of tubercles from rabbit's lungs reveal the development of giant cells from the vascular endothelium. Sections from actinomycosis of cow's tongue reveal giant cells in vascular granulation tissue.—*Beitrag zur Riesenzellenfrage, L. Cost, Dissertation, Giessen, 1919, translated from Internat. Centralbl. f. d. ges. Tuberk. Forsch., 1920, xiv, 16.*

Squint, Lefthandedness and Tuberculosis.—In a book by the author it was claimed that squint was about three times more common in consumptives, and probably also in consumptives' parents, than in the nontuberculous; that such squint seemed to favor the left eye; and that tuberculous squinters were lefthanded and gave a family history of lefthandedness, oftener than did nonsquinters. These five points are examined further on a larger material with the following results: Ordinary concomitant strabismus in 500 adults or adolescent consumptives (all sputum positive) 1.2 per cent; in comparable controls, only 0.4 per cent. Of 343 cases of juvenile phthisis examined in Yorkshire, there were 11 squinters or 3.2 per cent. Bishop Hannan's recent London figures with ordinary school children revealed 1.5 per cent of squinters. The conclusion is reached that in the subjects of some forms of tuberculosis squint is twice or three times as frequent as in normal persons. Squint is excessive in lung and lymph gland tuberculosis, but not in bone or joint tuberculosis. Squint is excessive among the clinically nontuberculous mothers of nonsquinting consumptives. Of 65 phthisical squinters, 48 squinted with the left eye. Of 62 nontuberculous squinters 40 were left sided. It appears likely that left eyed preference is a characteristic of squint generally. Lefthandedness or mancinism occurs in 2 to 4 per cent of the general population. Rivers found it in 2.7 per cent of nonsquinting consumptives. In 60 squinters it occurred four times (6.6 per cent). Whether in phthisical or in nontuberculous subjects, left eyed concomitant strabismus is somewhat associated with mancinism, and with a family history of mancinism. To say that tuberculosis causes the squint is inadmissible because the history was always of the squint coming first; also there were signs of phlyctenules in very few of these patients. There is a distinct suggestion of the development of clinical tuberculosis being favored by an abnormal constitution of which squint is a sign.—*Squint, Mancinism and Tubercle, W. C. Rivers, Lancet, February 12, 1921, cc, 319.*

Types of Pulmonary Tuberculosis under the X-Rays.—1. Pulmonary tuberculosis can be divided into clinical and non-clinical types with a high degree of accuracy by sterescopic plates. 2. Unless we make this division into the two types we are putting our method on the level of tuberculin which will not differentiate between infection with the tubercle bacillus and the disease tuberculosis. 3. Negative stereoscopic plates can with an occasional rare exception exclude a clinical type of tuberculosis. 4. Parenchymatous tuberculosis is a clinical type unless slight in amount and definitely calcified, and peribronchial tuberculosis is of clinical significance only where it conforms to the following qualifications: upper or middle lobe distribution, unilateral or more marked on one side as compared with the opposite, gross in amount and presenting a hazy outline with definite modulations. 5. A negative diagnosis from the roentgenologist if of more value than a positive, in that in the face of suggestive symptoms, a positive diagnosis can often be made by other methods, but the X-ray alone offers the only accurate method of excluding the disease.—*The Clinical Importance of the Different Types of Pulmonary Tuberculosis as Determined by Roentgen Examination, R. G. Allison, Am. J. Roentgenol., March, 1921, viii, 103.*

Diagnosis of Pulmonary Tuberculosis.—Of 158 cases observed in the Brompton and Victoria Park chest hospitals, no less than 124 or over 78 per cent were reported as not suffering from tuberculosis; while of the 34 cases held to be tuberculous, 10 were looked upon as arrested and not requiring active treatment. In all, therefore, 24 cases only or 15 per cent of the 158 observed were recommended for treatment. The difference of opinion in respect of many cases that existed on the one hand between the Ministry of Pensions Boards and the tuberculosis officers, and on the other hand between the tuberculosis officers and the staffs of the chest hospitals, was not helpful to the official tuberculosis administration. The records taken collectively illustrate the difficulties in connection with the diagnosis of tuberculosis. To a lay committee it must be surprising that upon such an important issue as the presence of tuberculous disease there is room for so much disagreement by experts. Unfortunately, when there is a division of opinion, there is no means of determining on which side the truth lies. As to this, however, the after-histories of the cases concerned, will, in time, give some clue. As yet, in two cases only has a case reported by a hospital as being not tuberculous shown conclusive evidence of the disease at a later date. On the other hand, in one instance a case recommended by a tuberculosis officer for diagnostic observation was within fourteen days admitted to a home for very advanced cases. An important practical point which arises is the question of disposal and treatment of cases concerning whose condition there is a conflict of expert opinion. Some authorities urge that the doubtful and suspected cases, more than any other class of patient, are those for whom sanatorium treatment is most clearly indicated. Others, whose opinion carries no less weight, contend that such cases need nothing more than advice and periodic supervision, and that to label them as tuberculous by sending them to a sanatorium is to do the patient a great disservice. In London, the practice is elastic in this respect, the circumstances of individual cases determining the recommendation as to disposal. One principle, however, is followed constantly, namely, that all cases which have passed through an "observation" bed, irrespective of the expert findings, are referred to the appropriate tuberculosis officers and medical practitioners for such subsequent supervision as may be thought necessary. A copy of the report received from the observing hospital is, at the same time, forwarded to the tuberculosis officer and to the patient's usual medical attendant.—*The Diagnosis of Pulmonary Tuberculosis. N. Bardswell, Tubercle, March,* 1921, *ii, 257.*

Diagnostic Value of X-Ray Examination.—Since the earliest days of roentgenology the aid of the X-ray examination has been invoked for diagnostic assistance in cases of suspected pulmonary tuberculosis and to-day its employment is a very important part of the routine examination of the chest. Nevertheless, there is considerable confusion concerning the interpretation of the shadows seen on the plate. The X-ray appearances of pulmonary tuberculosis vary with the stage of the disease. The shadow cast by the pathological tissues may be of any degree of density, including the faint filmy shadow of the very early case, the mottling of the more advanced disease and the dense shadow of the healed lesion. At times, the first indications of disease will be detected by the physical examination; at other times the X-ray alone will show the early changes and the X-ray affords the most accurate information that can be obtained apart from the autopsy, at least for the extent of the disease. Usually

when physical signs are present, the X-ray will demonstrate the area of involvement to be more extensive than was indicated by the physical examination. No method or combination of methods at present employed will detect invariably the earliest signs of disease in every case nor decide positively at all times the activity of a lesion. The X-ray will demonstrate the site and the extent of the tissue changes, and although usually it is possible to infer from the plate alone whether the lesion is active or not, this decision should be left to the clinician to make. To discover on the plate indications of pathological changes in the tissues, usually requires the support of clinical evidence of disease, before concluding that the changes can be due only to tuberculosis. Otherwise the discovery may consist of nothing more than the recognition of a condition which has long since ceased to be a matter of medical interest. The clinical support need not be confined to the presence of physical signs within the chest, but may be manifested by the presence of general symptoms of ill health. Definite indications of pathological changes in the lungs so often are seen on the X-ray plate, not only in individuals who apparently are in perfect health, but also in those who give no history of having suffered from a serious illness at any time, that one is forced to the conclusion that tuberculosis of the lungs is frequently a mild disease, often running its course from onset to recovery unrecognized. —*The Diagnostic Value of the X-Ray Examination in Pulmonary Tuberculosis, W. A. Wilkins, Canad. M. Ass. J., November, 1920, x, 99.*

Glandular and Pulmonary Tuberculosis.—A constant fact, observed in fifty years experience, is that the members of families with an inherited predisposition to the disease who suffer from cervical gland lesion leading to suppuration do not contract pulmonary tuberculosis or any other form of the malady, whereas several other members of the same families without gland lesion, and often the more robust individuals, frequently develop consumption. The conclusion to be drawn is that the absorption of tubercle bacilli from the surface of the mouth when conveyed by the lymphatic vessels and arrested in the glands, as indicated by these glands breaking down, leads to the production there of a type of bacillus capable of curing consumption, and conferring immunity without the bacilli themselves going beyond the gland.—*Glandular and Pulmonary Tuberculosis, W. Williams, Brit. M. J., January 29, 1921,* 158.

Diagnosis and Significance of Tracheobronchial Adenopathy.—Conclusions: 1. A positive D'Espine sign is indicative of enlarged glands at the root of the lungs. 2. Enlarged tracheobronchial glands may be due to any one of several causes, the chief of which is an infection by the tubercle bacillus. 3. If tonsilitis, whooping cough or measles causes enlarged tracheobronchial glands, they are usually not of sufficient size or density to give a positive D'Espine sign. 4. Chronic bronchitis will produce enlarged tracheobronchial glands which can be differentiated from a tuberculous hilum by means of the roentgenogram. 5. A positive D'Espine sign found in a poorly nourished child usually is evidence of a tuberculous infection of the hilum. 6. The degree of the infection can be determined by the roentgenogram. 7. Weight below standard is very common in children with a chronic tuberculous infection. 8. A child with a massive chronic tuberculous infection is a candidate for active tuberculosis, and should be watched carefully for early signs and symptoms. 9. In chronic tuberculous infections in children, few signs can be elicited by physical examination. 10. The degree of the infection in childhood is an important factor in determining whether or not a child will develop active tuberculosis in adult life. 11. Every child should have a thorough physical examination with the idea of determining if possible whether or not there is a tuberculous infection of the chest, and if so, how heavy. 12. Those with evidence of massive infections should be taught how to live and should be instructed in the signs and symptoms of early tuberculous activity. If this were done, the number of advanced cases of pulmonary tuberculosis would be greatly reduced.—*Diagnosis and Significance of Tracheobronchial Adenopathy, R. M. Balyeat, J. Am. M. Ass., April 9, 1921, lxxvi, 988.*

Tuberculous Hemarthrosis of the Knee.—Only a few cases of this condition are on record. The patient, a girl of fifteen, was admitted to the hospital suffering from multiple tuberculous lesions. The glands of the neck were involved; there were small lesions in connection with the epiphyses of the left wrist, right ankle and right elbow and a tuberculous dactylitis. There was no history or evidence of hemophilia. The right knee had been swollen and painful from the time of admission. At first the application of extension to the knee relieved the pain, but the swelling became more marked. Gradually the swelling became extreme and the pain severe. Exploratory puncture revealed a large quantity of dark

fluid blood and a few clots. After the evacuation of the blood, improvement continued for ten days when the joint became rapidly distended and a further quantity of blood was evacuated. A third bleeding occurred a week later; the blood was evacuated, after which there was no further hemorrhage. The patient's health improved; the joint remained slightly swollen and tender and the synovial membrane distinctly pulpy.—*Tuberculous Hemarthrosis of the Knee, J. A. C. Macewen, Brit. M. J., January 29, 1921, 158.*

Tuberculous Lymphangitis.—Two cases of superficial lymphangitis are reported. The one involved the entire arm like a chain of beads outlining the course of the lymphatics. It arose from a primary lesion on the thumb, resulting from an abrasion infected from a fistulous testicular tuberculosis. The other also involved the arm up to the axilla, starting from an ulcer on the left index finger in an advanced case of intestinal and peritoneal tuberculosis. The clinical picture is that of a slow painless development of more or less firm nodules along an indurated lymph path. The nodules can soften and rupture. The prognosis is that of the general disease.—*Über tuberkulose Lymphangitis, B. Kipris, Dissertation, Berlin, 1918, translated from Internat. Centralbl. f. d. ges. Tuberk. Forsch., 1920, xiv, 121.*

Chronic Tuberculosis of the Kidney.—Chronic infection of the kidney as a primary lesion in the body does not exist. Unilateral chronic renal tuberculosis results from a previously existing focus elsewhere in the body by way of the blood stream. The bladder involvement is secondary. The disease usually manifests itself as a chronic pyuria. Every positively diagnosed case of unilateral renal tuberculosis must be operated.—*Beitrag zur Frage der chronischen Nierentuberkulose. J. Diener. Dissertation, Kiel, 1919, translated from Internatl. Centralbl. f. d. ges. Tuberk. Forsch., 1920, xiv, 122.*

Tuberculosis of the Kidney in Women. The following conclusions are formulated from an experience with 77 cases. 1. In cases of renal tuberculosis, in 18 per cent there has been a family history of tuberculosis. 2. In 60 per cent of the cases of tuberculosis of the urinary tract the lesion has been in the right kidney, in 35 per cent in the left kidney, and has been bilateral in four patients. 3. Renal tuberculosis occurs most frequently between the ages of twenty and forty, 71 per cent. 4. The average duration of symptoms before coming to the hospital was thirty-three months. 5. Renal tuberculosis in colored women, although not as frequent as in white, is by no means rare. 6. In 88 per cent of cases dysuria and polyuria were the first symptoms. 7. One-third of the women complained of hematuria on admission, and in eight patients smoky urine was the first symptom. 8. Thickening and tenderness of the portion of the ureter palpable on vaginal examination was present in 32 per cent of the patients, and this sign is of great help in the early detection of cases of renal tuberculosis. 9. Of the seven patients not operated on, four are known to be dead and the other three left the hospital in a very bad condition and are probably now dead, although there is no definite information about them. 10. The 3 women on whom simple nephrotomies were performed all did badly. 11. The ultimate result is known in 42 out of 67 cases in which the kidney was removed, or in 62 per cent of the cases. 12. Seven of these 42 patients may be classed as greatly improved and are now alive, six years after their operations; 25 are entirely well with an average period of eleven years since they were discharged from the hospital. This means that 16.5 per cent of the women of whom there is record have been greatly improved by their operations and 59.5 per cent have been entirely cured. 13. Comparison of the results obtained when the ureter is removed with the kidney and when it is left *in situ* shows that, although the ultimate results are the same following the two methods, the postoperative sinus heals more rapidly when a nephro-ureterectomy is done, and this therefore, seems to be the operation of choice when the patient's condition warrants a prolongation of the anesthetic.—*Tuberculosis of the Kidney in Women, L. Brady, Bull. Johns Hopkins Hosp., January, 1921, xxxii, 13.*

Tuberculous Salpingitis.—The findings of 200 cases of tuberculous salpingitis are summarized as follows: 1. Tuberculous salpingitis occurred in nearly 1 per cent of all women admitted on the gynecological service of the Johns Hopkins Hospital. 2. It was found one and a half times as frequently among the colored women as among the white. 3. Out of every 13 abnormal tubes removed at operation, one was tuberculous. 4. Nearly three-fourths of the patients were between twenty and forty years of age. 5. Sixty per cent of the married patients were sterile. 6. A family

history of tuberculosis was reported in 22.5 per cent, while in an additional 2.5 per cent the consort had active pulmonary tuberculosis. 7. The chief complaint of the patient was pain (74.5 per cent) usually situated in the lower abdomen (82.5 per cent). 8. Not much information was obtained from the menstrual history. However, 62 per cent of the patients had dysmenorrhea and 41.5 per cent menorrhagia. Amenorrhea occurred in only 6.5 per cent of the patients. 9. Leucorrhea occurred in 72 per cent of the patients. 10. Nearly half of the patients had dysuria, nycturia and pollakiuria. 11. More than half of the patients were constipated. 12. Approximately one-fourth of the patients attributed the onset of their symptoms to some uterine activity (menstruation, pregnancy, etc.). 13. Half of the patients had lost weight during their illiness. 14. The physical examination presented no characteristic findings. 15. About one-fourth of the patients had pulmonary tuberculosis. 16. Pre-operative elevation of temperature was recorded in 62.5 per cent. 17. There was usually either an absolute or a relative leucopenia. 18. Half of the patients examined had a hemoglobin below normal limits. 19. The correct diagnosis before operation was made in only 13 per cent of the cases and in more than half of these the diagnosis was aided by the presence of ascites. 20. A radical operation was performed in 53 per cent of the cases. 21. Complications during operation occurred in 14.5 per cent of the patients. 22. One hundred and four cases were drained. Of these, 17.3 per cent developed fecal fistulae. Abdominal fecal fistulae occurred 3 times more frequently among the cases drained abdominally than in those drained through the vagina. 23. In one-third of all the patients, there was suppuration of the abdominal incision. 24. No patients who were not drained, developed a fecal fistula. 25. The incidence of fecal fistulae among the cases in which the bowel had been injured was 48 per cent, whereas among the cases in which the intestines had remained intact, the incidence was only 3.4 per cent. The patients with pre-operative fever developed fecal fistulae more than twice as frequently as those without fever. 26. Urinary fistulae occurred 5 times (2.5 per cent). 27. The order of frequency of involvement of the pelvic organs was as follows: tubes, uterus, ovaries, cervix and and vagina. Tuberculosis of these organs was found associated with tubal tuberculosis as follows: uterus, 72.6 per cent; ovaries, 33.1 per cent; cervix, 3.5 per cent; and vagina, 0.5 per cent. 28. In 99 per cent of the cases both tubes were involved. 29. In 68 per cent of the cases the peritoneum was involved, and in 3 per cent the appendix was tuberculous. 30. In 17 per cent myomata uteri were associated with the tuberculous process. 31. In only 2 per cent was there an associated involvement of the urinary tract. 32. The prognosis is grave in the presence of tuberculosis elsewhere in the body, where fever exists and where the peritoneum is involved. 33. The operative mortality was 7.6 per cent. (This includes all the patients who died in the hospital.) 34. By means of follow-up letters, etc., 90 patients were traced and out of this number, 78 were found to be living from 2 months to 30 years after the operations. Nearly all those who are alive are in good condition.—*A Clinical Study of Tuberculous Salpingitis, based upon 200 Cases, J. P. Greenberg, Bull., Johns Hopkins Hosp., February, 1921, xxxii, 52.*

Tuberculous Meningitis.—Eighty cases of tuberculous meningitis seen by the author have followed grippe or have appeared a short time after it, grippe having been the cause only occasionally. One patient had had pneumonia a month before. Meningitis appeared suddenly and death occurred within forty-eight hours. Another patient convalescing from pneumonia was taken ill suddenly within a week, and twelve hours later he was dead. At the necropsy suppuration of the meninges was found. The pus contained only the pneumococcus. In two cases the meningococcus was associated with the pneumococcus. In some cases only the streptococcus was present. In the tuberculous cases, the tubercle bacillus was found in 80 per cent of the cases. The mortality in these cases was 100 per cent.—*Acute Meningitis and Tuberculous Meningitis, L. Morquio, J. Ment. & Nerv. Dis., January, 1921, liii, 1.*

Mixed Infection in Surgical Tuberculosis.—Of 80 cases of surgical tuberculosis radical operation under strict asepsis was performed on 22 while 58 were punctured. Thirty-nine had X-ray treatment. Of 71 cases with open foci, 51 perforated spontaneously. Of these 4 were untreated and negative for mixed infection while 47 received ambulatory treatment. Of these 21 were positive for mixed infection and 26 negative; the 20 remaining cases had incisions and fistulas and of these 18 had mixed infections. A large percentage showed a progressive course. Of 9 cases with multiple foci, only one closed, had no mixed infection and had a chronic benign course. The majority of the remainder had mixed

infection and a progressive course. The bacteriological findings revealed in 37 staphylococcus pyogenes aureus, in 14 streptococcus pyogenes, in 2 streptococcus and staphylococcus, in 3 xerosis-like bacilli and in 1 bacillus fusiformis. Surgical procedures should be performed under the strictest asepsis. In mixed infection drainage of the pus is necessary. The roentgen ray can be used as a conservative measure and may be of some prophylactic value. The quartz lamp is only valuable in superficial lesions. Orthopedic procedures are difficult in secondary infections, as frequent changes of splints are necessary. Specific therapy fails in the presence of secondary infection. Rollier's sun treatment has given the best results.—*Die Bedeutung der Mischinfektion bei chirurgischer Tuberkulose, M. Jerusalem, Wien. klin. Wchnschr., 1920, 33, 471.*

Pulmonary Sequellae of Influenza.—In many patients attacked by acute epidemic influenza certain sequellae are left in the respiratory tract after the acute disease has run its course. A large number remain with subacute rhinopharyngitis, some with general bronchitis, and now and then there are patients in whom the residual lesion is a localized bronchitis. When the latter affects an upper lobe it is very difficult to differentiate from pulmonary tuberculosis. When these sequellae are instrumental in keeping the patient weak and debilitated for weeks and months, which is often the case, this, in addition to the cough and expectoration, may lead to a diagnosis of pulmonary tuberculosis. More serious pulmonary lesions are bronchiectasis and lung abscess, which have increased in frequency since the last pandemic of influenza. Bronchiectasis remains in cases in which influenza was complicated by pneumonia or pleurisy or both. The diagnosis is at times very difficult, mainly because of the ancient notion that influenza is a strong predisposing factor to tuberculosis. When the lesion is found strictly localized in one of the lower lobes and this is the case in the majority, tuberculosis should be excluded for this reason alone. In those in whom the lesion is in an upper lobe, only repeated sputum examinations decide, though it should count against tuberculosis that the disease began with influenza, that emaciation is not pronounced, that fever is lacking, that the pulse rate is normal, and that there is obtained clear resonance above the clavicle. Where pulmonary abscess remains after influenza, the diagnosis may be made along the same line as in bronchiectasis. In addition note should be made of the fact that the sputum is abundant, at times fetid, the fever continuous or undulating, and pain in the chest is complained of. If several examinations of the sputum fail to disclose tubercle bacilli the diagnosis may be safely made. Leucocytosis with an increased proportion of polynuclear cells points to abscess.—*Pulmonary Sequels of Influenza, M. Fishberg, Am. J. M. Sc., March, 1921, clxi, 365.*

Standardization of Tuberculin.—The chief uses of tuberculin at present are the testing of cattle for tuberculosis, the diagnosis of tuberculosis in man and the treatment of tuberculosis in man. In this paper the test is described as applied in the Wellcome Physiological Research Laboratories. The main test consists in the comparison of a sample with a standard tuberculin. The Pirquet and intracutaneous tests can be used for the standardization of tuberculin. The results obtained by the subcutaneous test have always had to be checked. In all cases where the skin tests are used alone, a control and the standard must be included on the same animal as the samples under experiment. Since August, 1919, 13 different lots of animals have been infected with a constant dose of the same culture. Of these animals, 91 have received doses of standard tuberculin ranging from 1.0 cc. to 0.025 cc. In only two cases were irregular results produced with animals of the same lot. The following factors must be controlled if accurate results are to be obtained: (1) the same strain of tubercle bacilli must be used for infecting the animals; (2) the guinea pigs should be about the same size; (3) all animals to be given tuberculin should be examined and any sick ones discarded; no animals should be used unless the inguinal glands are palpable; (4) the Pirquet test should be used to guide the dosage for subcutaneous injection. The results show that tuberculins can be tested with a reasonable degree of constancy.—*The Standardization of Tuberculin, A. J. Eagleton, Lancet, February 26, 1921, cc, 429.*

Action of Prolonged Pasteurization on Tubercle Bacilli in Milk.—The milk is kept at 60° to 64°C. by steam heated cylinders for twenty to thirty minutes with constant stirring. This procedure had no influence upon the taste, the separation or the albumin or soluble lime salt (phosphate) content. Only amylase of the original milk enzymes is destroyed, while peroxidase and aldehydreductase remain intact. The majority of the lactic acid bacilli are killed. The experiments were performed under practical circumstances. Tubercle bacilli

from lesions of the udder were killed, even if pasteurization was only carried out for ten minutes at 60°C.—*Einwirkung der Dauer-Pasteurisierung auf die Tuberkelbazillen der Milch, C. Barthel and O. Stenstrom, Ztschr. f. Gärungsphysiol., translated from Centrabl. f. Bakt. u. Parisitk., Ref., 1920, lxix, 228.*

Mustard Gas and Experimental Tuberculosis.—Mustard gas dissolved in 25 per cent glycerol is bactericidal for virulent human tubercle bacilli after an exposure in vitro of at least one-half hour to 0.1 per cent and after 2 hours to 0.01 per cent. Avirulent human and bovine tubercle bacilli seem to be slightly less sensitive, these organisms requiring an exposure of from 4 hours to one day to obtain the same results. What part, if any, the hydrolysis of mustard gas in the glycerol played in this experiment was not determined. Mustard gas in 0.25 per cent glycerol, containing virulent human tubercle bacilli and injected immediately subcutaneously into guinea pigs, entirely prevented the development of systemic tuberculosis in these animals. Even 0.01 per cent mustard gas has a distinct retarding influence on the development of tuberculosis in these animals. This action could not be due to the tissue-destroying action of the mustard gas in these concentrations, since the same results were obtained in the absence of ulcers. Mustard gas given subcutaneously to guinea pigs in amounts consistent with life (0.001 cc. in glycerol) in a single injection or repeated at four day intervals, for three or four injections, has no appreciable effect on the amount of anatomic tuberculosis resulting from the subcutaneous injections of virulent human tubercle bacilli.—*The Effect of Mustard Gas (Dichlorethylsulphid) on Experimental Tuberculosis, H. J. Corper and O. B. Rensch, J. Infect. Dis., March, 1921, xxviii, 286.*

Leucocytic Response in Experimental Tuberculous Infections.—Guinea pigs have been rendered relatively immune against infection with virulent tubercle bacilli by preliminary inoculation with a suitable quantitity of avirulent tubercle bacilli. Blood counts on these animals show that associated with the immune reaction there is a definite leucocytic response, characterized by an absolute increase in the total count, with an absolute and relative increase in the lymphocytes. The period of greatest activity coincides with that known to be the period of greatest reaction based on anatomical evidence during the course of the infection following this method of immunization. Moreover, blood counts made on animals inoculated with avirulent tubercle bacilli alone show an increase in the circulating lymphocytes during the period of greatest reaction to the infection, while blood counts on guinea pigs inoculated with virulent bacilli alone show an erratic course in which the polymorphonuclear forms are much increased, though not regularly so. These results indicate a parallelism between lymphoid activity and resistance of the animals to tuberculous infection and suggest an association of lymphocytes with the factors determining this resistance, a relation which warrants consideration of the blood picture in the clinical study of tuberculous infection.—*General Leucocytic Response of the Guinea Pig During the Reaction of Artificial Immunity in Experimental Tuberculous Infection, R. G. Hussey, J. Exper. Med., March, 1921, xxxiii, 337.*

Sun Treatment—Of all infectious diseases tuberculosis is the one in which the resistance of the invaded organism plays the most important part in the cure. Surgical tuberculosis is not merely a local disease as formerly believed, but also a general disease demanding general treatment as well as local. Heliotherapy at a high altitude best meets all indications. It is the ideal treatment, since the sun combined with pure mountain air has the desired effect by raising the vitality of the organism and restoring the wasted tissues. Locally, the sun's action is powerfully analgesic and bactericidal, besides reducing inflammation and promoting cicatrization. An experience of seventeen years has proved that sunlight can cure all forms of surgical tuberculosis in all stages and at all ages. By the simultaneous development of the muscles, heliotherapy returns lost beauty to the outlines of the body. It enables us to return to normal life individuals well prepared for work and not maimed and crippled portions of humanity incapable of earning their living. In 1903 Rollier was responsible for the opening of the first clinic in Switzerland for the exclusive treatment of surgical tuberculosis. This establishment of fifty beds soon became insufficient and thirty new clinics have since been added. At the present time there are a thousand beds available for the treatment of surgical tuberculosis. Rollier believes, if heliotherapy can cure tuberculosis, it can also prevent its inception. By founding the *Ecole au soleil des noisetiers* at Cergrat in 1910 he was the first to put into practice this preventive action of the sun. This establishment has two purposes—to save

from tuberculosis weakly and predisposed children, and to form an intermediate stage where the convalescents can gradually be prepared for their return to normal life. The results obtained by this school have been so conclusive that one can safely advocate the widespread establishment of similar preventive schools—*The Sun Treatment of Surgical Tuberculosis, A. Rollier, Brit. J. Tuberc., January, 1921, xv, 10.*

X-Ray Treatment of Tuberculous Lymph Nodes.—There are at least five alternative methods of treatment at our disposal for tuberculous lymph nodes: (1) climatic and dietetic, (2) medicinal, (3) tuberculin, (4) surgical, (5) radiation. The paper deals with the last named method, but the others are briefly passed in review. Climatic and dietetic treatment is in the majority of cases inadequate alone, but may be combined with any of the other methods to accelerate recovery. Medicinal and tuberculin treatment accomplishes a cure in about 25 per cent of the cases, according to Rendle Short in his index of prognosis. Surgical intervention is usually instituted in the severest cases. Statistics vary greatly as to the frequency of local recurrences. The best figures are those of the Mayo Clinic, which give a local recurrence rate of 8.6 per cent. Although no definite conclusions can be drawn from published statistics, it seems that X-ray treatment efficiently applied will show results superior to those quoted above. At the same time the usual hygienic-dietetic regimen must not be neglected. There are no contraindications to X-ray therapy. In some cases it may be necessary to combine operative measures with radiation. The size and frequency of the dose can only be determined for each case individually. Generally speaking, we may give large doses at intervals of about three weeks, or smaller doses at shorter intervals. Some cases do better on one method and some on another. It is not contended that X-rays are invariably successful, but a large proportion of cases derive considerable benefit and many are entirely cured.—*X-Ray Treatment of Tuberculous Glands, M. Berry, Brit. J. Tuberc., January, 1921, xv, 13.*

Public Tuberculosis Service—Tuberculosis dispensaries have not as yet taken their proper place. There are many patients who come to the dispensary unnecessarily. It thus becomes overloaded with patients and the tuberculosis officer is unable to devote sufficient time to examination and diagnosis of each individual case and defers them for observation from week to week. Adequate staffing of dispensaries is essential. It will generally be found that a dispensary nurse is only able to do two hours visiting per diem as the rest of her time is devoted to attendance on patients at the dispensary. On this basis a nurse can cope with only 300 to 350 patients. Too little importance has also been attached to preventive work and to efficient care and aftercare of patients. The latter must consist largely in providing suitable work and suitable hours. The gap which now exists between the discharge from a sanatorium and the return to full work is one which is undoing half the work accomplished by these institutions.—*The Organization and Administration of a Public Tuberculosis Service, F. J. C. Blackmore, Brit. J. Tuberc., January, 1921, xv, 20.*

The Influence of Chaulmoogra Oil on the Tubercle Bacillus.—Undiluted chaulmoogra oil and dilutions in paraffin oil had no appreciable germicidal influence in vitro on a strain of bovine tubercle bacilli in the authors' experiments. The sodium salts of the total acids of this oil were not included in this study. Undiluted and diluted chaulmoogra oil had no appreciable germicidal effect on virulent tubercle bacilli by an in vitro-vivo method with guinea pigs. Chaulmoogra oil, in doses of 0.2 cc., per 100 gm. of body weight administered by intramuscular injection at weekly intervals had none or but slight effect on the course of tuberculosis in guinea pigs. Chaulmoogra oil is relatively nontoxic for guinea pigs. Animals have borne at least 11 intramuscular injections of 0.2 cc. per 100 gm. without deleterious effect, except localized inflammatory changes at the sites of the infection.—*The Influence of Chaulmoogra Oil on the Tubercle Bacillus, J. A. Kolmer L. C. Davis and R. Jager, J. Infect. Dis., March, 1921, xxviii, 265.*

Vaccine Treatment of Tuberculosis.—The Dávila vaccine is prepared from tubercle bacilli, wholly disintegrated and emulsified in a perfectly sterilized greasy medium. It includes the bacillary stroma, all the adipocerous material and the free toxins. The bacillary poisons are so attenuated that it has been possible to inject, at once, up to 32 mgm. of this vaccine, without inducing feverish, congestive or any other kind of harmful reaction. Dávila claims that his vaccine contains all the bacillary elements and toxins and that the immunity obtained is therefore complete, whereas the tuberculins necessarily give only partial results. That the vaccine is not inert is proved by the fact that a cutaneous tuberculin test which had

been positive prior to the administration of the vaccine, reappears after it. Dávila has proved the efficacy and the relative immediate innocuousness of high doses by experiments on rabbits and other animals. The vaccine employed by the authors was prepared two years ago and has kept without alteration and without losing its activity. Nineteen cases were treated at the sanatorium *La Esperanza* and thirteen at the dispensary. The most remarkable results have been obtained at both places, but at the sanatorium the results were more rapid. Not only incipient but also moderately advanced and even a few far advanced cases were selected. The usual hygienic-dietetic regimen must not be neglected. The treatment should be continued several months after signs of activity have disappeared. The vaccine is employed in the following manner: Two hypodermic injections a week are given in the deltoid region, at first 1 cc. of an emulsion containing 2 mgm. of active substance. The subsequent dose is always double the previous one until 32 mgm. are reached. If the temperature rises above normal, weaker doses are resumed and more gradually increased. Some patients have steadily gained in weight after they have been discharged and returned to their usual occupations. At the dispensary, two pregnant women received the treatment, gave birth to normal children and remained well. The authors recommend the treatment officially to the Department of Sanitation and Charity: 32 cases are reported in detail.—*Treatment of Tuberculosis in Human Beings by Means of the Vaccine Prepared by Dávila, F. Rensoli and S. Fuentes, Sanidad y Beneficienca, March, 1920, xxiii,* 31.

Tuberculinization of Babies.—In our endeavor to abolish pulmonary tuberculosis we fail to identify the unfit, those who are vulnerable to the destructive effects of the tubercle bacillus, and we fail to make ourselves acquainted with the early stage of the disease. Babies suffer from temporary febrile attacks, which seem to be of idiopathic origin and are in no way distinguishable from general reactions induced by tuberculin in those known to be tuberculous; nor are idiopathic pulmonary inflammations distinguishable from focal reactions. Nutritional disorders of babies are not easily distinguished from those of older subjects, afterwards known to be tuberculous. Unsuspected appearances of tuberculosis render it certain that there are many unsuspected carriers. To render these carriers innocuous would entail placing a very large percentage of the population under observation. A testing census of the population is as practicable as revaccinating a whole people against smallpox. It would be of immense value for identifying the unfit, and for rendering timely aid to those whose resisting powers were commencing to wane. Four cases are reported to show that infants under one year may be infected, and that tuberculin can restore them to health while they remain with the source of infection. In order to make the use of tuberculin practicable, reliance should be p'aced on the skin reaction. Where this is positive, graduated injections of tuberculin should be given until a reaction fails, but in all cases a record of the weight should be kept as an index of the tuberculin effects. The method is simple, safe and free from any remote danger. O. T. is diluted by the tenths method of dilution so that the sixth dilution represents one in one-millionth. A 1 cc. hypodermic syringe, graduated in ten divisions, is used. The fluid is placed just beneath the skin and induration is looked for on the second, third or fourth day. The author suggests one-fifth of one-millionth of 1 cc. for an infant of three months. Most tuberculous babies show a rise of temperature of about 2 degrees during the first six hours succeeding the injection.—*A Plea for the Tuberculinization of Babies, R. C. Holt, Tubercle, November, 1920, ii,* 54.

A Simple Artificial Pneumothorax Apparatus.—The apparatus described was recently constructed at the Loomis Sanatorium as the result of several years of experimentation. All the good features of other types have been included; hence it is largely a modification of one or more well-known forms. The box, or container, is constructed of $\frac{1}{2}$-inch, double oak veneer. It measures $13\frac{1}{2}$ inches high, $7\frac{1}{4}$ inches deep and 13 inches wide. The floor and vertical partition are of $\frac{1}{2}$-inch pine. The apparatus operates on the principle of the siphon, the right-hand bottle being elevated to hasten the delivery of gas or air and lowered outside the case to create suction for filling. This bottle is elevated by means of a movable shelf supported at different levels by cleats. The bottles are 2-litre percolating jars, fitted with rubber stoppers and graduated in cubic centimetres. Each has 2 glass tubes, a long one and a short one. The rubber tubing connecting the bottles is slipped over the long tube of each. The fluid used is a compound solution of cresol, 1 per cent, which may be colored with alcoholic gentian violet or fuchsin. The stopcocks are a hard-rubber one between the jars, and a two-way metal cock, mounted on the side, near the manometer. The manometer consists of No. 3 glass tubing and is mounted by soft

metal strips. It has a range of 14 cm. above and below the zero mark. The rubber tubing used has a $\frac{3}{16}$-inch lumen between the jars and a $\frac{5}{32}$-inch elsewhere. The box ready for use weighs 15 pounds. The filter consists of a glass cylinder fitted with a stopper and a long and short bent glass tube. It is nearly filled with 1: 500 mercuric chloride solution. A small calcium chloride tube, with the bulb loosely packed with cotton, is attached to the longer tube. When the right-hand bottle is lowered and the cocks are opened, negative pressure is created in the left-hand bottle, and this in turn causes air to be drawn through the filter. This air (gas), having passed through cotton and bubbled through the mercuric chloride solution, is clean and presumably sterile, and is stored in the left-hand bottle until used. This method of filling has proved most satisfactory and can easily be done by the average nurse. The advantages of this apparatus are its ease of operation, lightness of weight (portability) and low cost. Any carpenter can construct the box or container, and the assembling and fitting up of the parts ought to be well within the powers of the average laboratory technician.—*A Simple Artificial Pneumothorax Apparatus, J. S. Woolley, J. Am. M. Ass., September 11, 1920, lxxv, 739.*

Hospital School for Surgical Tuberculosis in Children.—Surgical tuberculosis should be treated on open, barren, flat shores, which are exposed to the full force of the winds, and where an equable temperature, moderate humidity and abundant sunshine can be obtained. The hospital at Leasowe, England, is constructed on the block-pavilion principle, each block consisting of two stories with 24 or 30 beds on each floor. The wards face due south and are light and airy, with excellent cross-ventilation. On the southern aspect they are provided with large glass folding doors which open to roomy sun balconies. The treatment of surgical tuberculosis is carried out on conservative lines, and comprises the adoption of measures to arrest the disease and to carry out the orthopedic principles for the restoration of the function of the parts attacked. The treatment can be described as consisting of three stages: the acute, during which absolute physiological rest in the recumbent position, with immobilization of the diseased area, is demanded; the chronic, where recumbency is no longer compulsory, but immobilization must be maintained so as to allow repair to take place, and to prevent deformity; and the convalescent, during which complete immobilization is no longer necessary, and graduated exercises may be allowed. The duration of the respective stages, and that of the total time required to complete the treatment, vary in each case and are influenced by the virulence of theinfection, the site and extent of the disease, and the age and resisting powers of the patient. The most important adjuvant measure is heliotherapy. There can be no doubt as to its beneficial action The aim is to expose the whole body to the action of the sun's rays, and to produce a generalized pigmentation of the skin. The exposure is undertaken gradually so that tolerance may be acquired. The degree of pigmentation in some cases may be taken as an indication of the progress towards recovery. X-ray therapy and, more recently, chemotherapy have proved of valuable help in dealing with the more superficial manifestations of the disease. The combination of school work with the hospital treatment of these cases has proved a great success. Many of the children prior to admission have been unable to attend school for a considerable time, and being considered invalids they have become the spoilt tyrants of their homes. Their habits are unnatural; they are destructive, and often melancholic. Carefully planned work eliminates these tendencies, and the natural activities of the child can be directed into proper and healthy channels, and the monotony of the enforced recumbency relieved. The cases are followed to their homes after discharge from the hospital, and much valuable information is gained in confirming the diagnosis of cure and in watching the progress of these cases in after life.—*A Hospital School for the Treatment of Surgical Tuberculosis in Children, T. H. Martin, Brit. J. Tuberc., October, 1920, xiv, 145.*

Open-Air Schools During 1919.—The purpose of the open-air classes is to make it possible for types of pupils whose physical condition prevents them from attending school in regular classes to regain their normal physical condition and at the same time to procure their education without any loss of time. At present the following types of children are admitted: (1) Children exposed to tuberculosis at home or in whose family there has been a recent death from this disease. (2) Those who have had tuberculosis which is now cured. (3) Children suffering from malnutrition. (4) Those who become tired easily or show languor or fatigue before the end of the day and on this account are unable to carry on their class work. (5) Children suffering from nervous diseases except chorea. (6) Those who are frequently absent because of colds, bronchitis, etc. (7) Children suffering from cardiac disease who are recommended by the private physician as being proper cases for these classes.

Classes are located in public parks, roofs of schools and private buildings and in classrooms located in the public schools. There has been no difficulty in maintaining a full register in all the classes this year. The attendance was excellent, averaging much higher than the regular classes. Each child has a sleeping bag, cot and movable chair. Until the funds are available for better equipment it will be impossible to improve it. The medical inspectors examine every child at the beginning and end of each term and as often during the term as any individual child requires it. The nurses visit the classes at least once a week and keep the medical inspector informed as to the condition of the children. The follow-up work is conducted by school consultations, home visits and mothers' meetings. The qualifications of the teachers are good health, even temperament, capacity for doing a large amount of school work well, willingness to do social service and a desire to study the problems of this work. The classes observe the following daily routine: 9 to 10 a.m., school work; 10 to 10.15 a.m., extra feeding, consisting of 8 ounces of milk (the children are urged to bring bread or rolls and butter to eat with their milk); 10.15 to 11 a.m., school work; 11 to 12, rest period; 12 to 1 p.m., lunch period; 1 to 2.45 p.m., school work; 2.45 to 3 p.m., extra feeding as above. The number of applications received from physicians requesting that their patients be received to such a class is steadily increasing. Many must now be refused on account of the lack of classes. The number of school children exposed to tuberculosis in their homes is over 10,000, while the total capacity of all the classes is less than 3000. All the school work, except shop work and drawing, can be done in the open-air classes. Many problems remain unsolved. One of the biggest is to provide proper medical attention. At times it is difficult to get the parents to consent to having their children receive proper medical or surgical care for the defects found by the medical inspectors. In most cases, however, the parents agree to have their children attended to, but the facilities are not at hand. This applies especially to dental care. Another problem is the lack of special training of the new teachers. Many of the children need a prolonged stay in the country during the summer, but no places are available for such purposes. A school farm would solve this to some extent, as the children could do enough of the work to make it nearly self-supporting. Over 50 per cent of the gain made during the school session is lost during the summer vacations. The home conditions have received a great deal of attention, and the results are very satisfactory. The essentials of this work are fresh air, food, light, correction of physical defects that retard growth and development, and hygienic home and living conditions. No child is considered to have improved unless a gain of at least half a pound a month is made. The lower the temperature, the greater the gain. This seems to prove that it is not only fresh air that is required. This appears due to the fact that the appetite is remarkably increased during the cold weather. The school progress of the children in the open-air classes was excellent. In most instances the gain is lasting.—*Open-air Classes in the Public Schools of New York City during 1919, S. Josephine Baker and J. Sobel, Monthly Bull. Dept. of Health, N. Y. City, October, 1920, x, 225.*

Occupations for Consumptives. The old advice to seek a job in the open air and pursue it is still offered. There are no light jobs except those that bring light wages, and light wages mean a gradual but sure descent into poverty, malnutrition and misery. The unsuitability of most occupations is due to conditions inherent in all commercial occupations and undertakings. That the conditions can be altered with benefit to the consumptive, shows that it is not the trade per se that is injurious, but the manner in, and methods by, which it is carried on. Payment according to results, or piecework is a factor extremely detrimental to the consumptive. With diminished physical and mental force, but anxious to provide for himself and his family, he speeds up to such an extent that the work, although not actually laborious, produces a mental and physical fatigue distinctly harmful. Labor has no objection to the employment of consumptives in colonies, provided that certain labor-protecting stipulations are carried out. What it objects to is the possibility that consumptives may be trained and then thrown on to the labor market, there to obtain work for which a reduced wage may be paid by unscrupulous employers. After-care committees are now finding out how great are the difficulties not only of providing employment, but of obtaining the complex of conditions which make up a sheltered life. This complex consists of an environment free from a vitiated atmosphere, employment at a pace which obviates both mental and physical fatigue, economic conditions which allow of ample remuneration for part-time work, a mentality on the part of the patient to conserve his energy at play as well as at work, and to avoid excesses of all kinds. It is possible gradually to build up communities of consumptives where the complex of favorable conditions is available and where

patients are enabled to do good work and earn good wages for an indefinite period. It is not known at present how long this period is. Accurate records are being kept and will be published when the numbers are greater and the length of time covered is sufficient to leave no doubt as to the fairness of the comparison. There is definite evidence that many trades, if carried out by consumptives under well-defined conditions, are of value as therapeutic agents. In many cases there need be no reëducation in a new and unaccustomed occupation. The trade itself must be adjusted to the man and not the man to the trade. Let his technical ability, often acquired during a long apprenticeship, have full play: it can never be replaced by a trade learned in later life, and the ease with which certain processes in his own trade may be accomplished makes it all the more suitable for the disabled man, provided the adverse conditions attaching to the trade are removed.—*Principles Involved in the Selection of Occupations for Consumptives, P. C. Varrier-Jones and G. S. Woodhead, Brit. J. Tuberc., October, 1920, xiv, 154.*

Treatment of Tuberculosis at the Seashore.—The article contains a résumé of the results obtained at the Asile Dollfus at Cannes, during the thirty years of its existence. Of some 1200 cases, comprising adenitis, ostitis, scrofulous skin changes, tracheobronchial and peritoneal tuberculosis, 51 per cent can be called cured, 41.7 per cent improved, and 7.3 per cent unsuccessful. Treatment consisted of sea baths, fresh air all the year round, and heliotherapy. The same effects are obtainable from radiation at sea level as in the higher altitudes. In cases of tracheobronchial lymphadenitis the marine cure is preferable to one at a greater altitude. However, if the lungs are infected, the baths may cause an awakening and spread of the disease.—*Le traitment de la tuberculose par la cure marine à l'Asile Dollfus (1886–1917), A. D'Espine, Rev. Méd. de la Suisse Rom., May, 1920, xl, 303.*

X-Ray Treatment of Tuberculous Lymphadenitis.—X-ray treatment is to be especially recommended in tuberculous adenitis in children and adolescents. Where no breaking down or liquefaction has yet taken place, early and brilliant results are the rule, and may be expected in over 80 per cent of all cases. In cases where some of the glands have broken down and are draining, this treatment will often produce early closure of the sinuses, reduction in size and softening of the scar tisssue and reduction in the size of the remaining glands. If at the beginning of treatment some of the glands are liquefied but not open and draining, it is frequently advisable to aspirate the contents by carefully drawing the fluid detritus into a hypodermic syringe through a moderate-sized needle, under the most careful aseptic precautions, and carefully sealing the small opening with collodion or benzoin. This aspiration may be repeated as often as fluid appears during the course of treatment. It is seldom necessary to do it more than two or three times. Suppuration is not considered to be a contraindication to X-ray treatment; in fact, numerous instances of remarkable cures of badly-suppurating cases, even after two to four operations, are reported in the literature and are upon the records of many roentgenotherapeutists. A very useful and efficient adjunct to the X-ray treatment, in cases where suppuration has continued for a long time, is the swabbing out of the sinuses with a mixture of equal parts of phenol and tincture of iodine. If the openings of the sinuses are too small to use a swab, a few drops may be instilled with a blunt hypodermic needle. Repeat this weekly. This will hasten the completion of the necrotic process until all the gland tissue is destroyed. It is advisable to apply a little sterile vaseline around the openings of the sinuses so treated, in order to protect the skin from the action of this mixture. The exact X-ray technique used must vary with the roentgenologist who is applying the treatment. An approved method is to give full dosage to all the affected area, about once every three weeks, using careful judgment as to what that dosage should be in each individual case. Just as it is in handling other active and powerful agents, each case must be treated as the indications of age, complexion, sensitiveness of the skin, and so forth, may indicate. Consequently, there can be no hard and fast rule laid down for the application of this treatment. One must study each case separately and determine its needs just as carefully as one would when applying surgical methods or administering drugs.—*X-Ray Treatment of Tuberculous Lymphadenitis, I. S. Trostler, Am. J. Clin. Med., December, 1920, xxvii, 804.*

Chemotherapy with Acid-Resisting Bacteria.—The authors became convinced that the active principle of chaulmoogra oil is in its acids, as they found it effectual in treatment of leprosy in a 2 per cent solution of the sodium salts. In the course of their research in this line they discovered that the nonsaturated acids in chaulmoogra and other oils possess the property of inhibiting the growth of acidresisting bacteria, and

check the proliferation of the leprosy bacillus and the tubercle bacillus. They ascribe to this the benefit from chaulmoogra oil in leprosy and of cod liver oil in tuberculosis. These oils act as direct chemotherapeutic agents and not as stimulants for phagocytosis or as tonics. They tabulate the findings with various oils with which they treated cultures of various acidresistant bacteria. The chaulmoogra was the only oil which constantly prevented the development of the various microörganisms. Chaulmoogra oil derived from *Taraktogenus kurzii* was most potent. Patients with active pulmonary tuberculosis reacted to its acid salts as to tuberculin. The destruction of the bacteria in the tissues floods the system with toxic products from the dead bacilli so that the condition may apparently grow worse. This is less likely in leprosy as the bacteria are not so toxic. This is true also of cod liver oil in mild forms of gland, bone and joint tuberculosis.—*Ensaios de chimiotherapia sobre os germens acidos resistentes, A. Lindemberg & B. R. Pestana, Brazil-Medico, September 11, 1920, xxxiv, 603.*

Treatment of Hemoptysis.—It is important to get extravasated blood out of the lung. Coughing must be suppressed for fear of detaching the obstructing clot, but the blood and sputum must be expelled by cautious hawking. It is not necessary to keep the patient in bed if he moves about cautiously, unless there has been loss of over 100 cc. of blood, or there is fever. But even then it is not best for him to keep absolutely still. The necessity for ample feeding of the tuberculous patient must not be forgotten when he has hemoptysis. The anemia entailed by the hemorrhage must be combated. Primary fatal hemoptysis is extremely rare, but a clot may obstruct the vocal cords and can be removed by hand. In many cases the tendency to hemoptysis can be combated with calcium chlorid or an extract of blood platelets by the mouth. Even a teaspoonful of common salt swallowed dry or in solution will draw the blood to the digestive organs and thus lower the pressure in the lungs. The blood can be tied off in the limbs, but in this case the limbs must be released separately afterward, not all at once.—*Om Haemoptysenbehandling, E. Als, Ugeskr. f. Laeger, November 4, 1920, lxxxii, 1389.*

Camphor and Emetine in the Treatment of Hemoptysis.—Camphor in oil hypodermically has been recommended in the treatment of pulmonary tuberculosis. It has also been used for hemoptysis, but with varying results. The question is raised whether or not, when large doses are frequently repeated, it is not the oil, rather than the camphor, that does the good, in much the same way as gelatine when used subcutaneously. One author would divide hemoptyses into indirect or passive, and direct or active; the former being due to a congestion from cardiac insufficiency, and the latter being caused by progressive ulceration. The passive hemoptysis may be favorably influenced by camphor. There is a similar debate about the use of emetine. It would appear to be of greatest use in cases in which there is hypertension.—*Le Camphre et l'émétine dans lé traitment des hémoptysies, L. Cheinisse, Presse Méd., September 11, 1920, xxviii, 637.*

Silica in Pulmonary Tuberculosis.—Reference is made to the silica (SiO_2) content of various structures of the human body and to the effect of silicic acid in the treatment of various skin and other affections. A series of guinea pigs was given injections of colloidal silicic acid. after which they were infected with a pure culture of tubercle bacilli together with a number of controls. One-half of the silicic acid pigs developed intercurrent pneumonia several weeks later. No evidence of tuberculosis was found at autopsy. The other half, four months after infection with tubercle bacilli, showed no evidence of illness, whereas the controls showed definite tuberculosis after four to six weeks. A repetition of the experiment gave similar results, showing that guinea pigs may be protected against tuberculosis by means of injections of silicic acid. The author has treated patients for four years with silicic acid. The results have been published in a previous article. For the first three years a mixture of Herba Equisetimin., Herba Polygon., and Herba Galeopsidis was given in the form of a tea containing 43 to 272 mgm. of silicic acid per dose. More than four hundred cases in all stages of the disease are under observation. During the treatment, silicic acid is secreted in increased amounts in the urine. Hygienic-dietetic and other treatments are not discontinued. The conclusion is reached that after years of treatment with silicic acid the tuberculosis tends more towards a chronic indurative type. It has no direct effect upon the fever. Latterly, injections of 2 cc. of a 1 per cent colloidal solution of silicic acid are given every two days.—*Neue Probleme in der Behandlung der Lungentuberkulose mit besonderer Berücksichtigung der Kieselsäurefrage, A. Kühn, Zeitschr. f. Tuberk., September, 1920, xxxii, 321.*

Sodium Silicate by the Vein.—A deficiency in silica seems to be one of the factors in the predisposition to arteriosclerosis and to tuberculosis. The research here related shows that sodium silicate can be given by the vein at need without harm. The dose generally used was 2 cc. of a 1: 1000 solution, injected on alternate days, a total of ten injections; recommencing after suspension for a week or two. It was used for patients with arteriosclerosis, cardiorenal disease and angina pectoris as well as in tuberculosis. Among those improving under this treatment was one man of 53 confined to bed by the headache and vertigo of cerebral arteriosclerosis, who was restored to active life and can now read and walk without pains.—*Les injections intraveineuses de silicate de soude, L. Scheffler, A. Sartory & P. Pellissier, Presse Méd., November 10, 1920, lxxxii, 806.*

Treatment of Tuberculosis with Sodium Morrhuate.—Three cases of surgical tuberculosis, two of tuberculous lymph nodes and one of tuberculous caries of the ankle and elbow joints were treated. In both the former cases the nodes healed by first intention. They were given hypodermic injections of sodium morrhuate every four days, beginning with 0.5 cc. and raising it to 2 cc. gradually at the rate of 0.25 cc. every third time. They did very well under the treatment. Both put on weight rapidly and the fever disappeared. In advanced cases with distinct cavities in the lung, the treatment does not do much good. In the early cases with high and hectic type of fever, the improvement is marked and fairly rapid. The temperature begins to go down almost after the first two or three injections by slow degrees. The large hectic range between the low subnormal morning temperature and the high fever in the evening, begins to contract at both ends, until at the end of about 15 to 20 injections it steadies at normal or slightly above, throughout the day and night. The reduction in temperature is noticeable even in very advanced cases. There is generally a reactionary rise in temperature after each injection. The fall in temperature is gradual and lasts for about three days, so that if the injection is not repeated for five days the usual evening rise of the disease shows itself clearly. The injections are therefore repeated on the fourth day. With the fall in temperature there is simultaneous improvement in the cough and expectoration. The increase in weight is slow but marked. The maximum weight gained was about 2 pounds in a week. Half a pound in a week has been fairly common. The characteristic rapid pulse remains obstinate; night sweats and sleep improve with the fall in temperature. Marked changes were produced in the bacilli. The bacilli become beaded and broken, but in no case even after 80 injections did they disappear. This is a disappointing feature. The treatment though very promising needs backing with open air, good and nourishing food and tonics.—*Note on the Treatment of Tuberculosis with Sodium Morrhuate, G. R. Tambe, Tubercle, November, 1920, ii, 58.*

Curability of Tuberculous Meningitis.—The case reported concerns a man, thirty-two years of age, who except for influenza in November, 1918, had been well until February, 1919. The symptoms of influenza were headache, fever, dizziness and vomiting lasting about one week. The illness in February, 1919, began in about the same way. A little later diplopia, nystagmus, ptosis and facial paresis appeared with rigidity of the extremities and positive Babinski. He died July 16, 1919. After death tubercle bacilli were found in the spinal fluid. The autopsy showed tuberculous lymph nodes of the neck, caseous tubercles in the right pleura, tuberculous infiltration of the lung, caseous and calcified nodes in the mesentery, small grayish white firm nodules over the base of the meninges and a nodule in the left Sylvian fossa and on the surface of the cerebellum. There were evidences of a previous tuberculous meningitis and encephalitis with numerous tubercles on the surface of the brain and in the interior of the ventricles. These tubercles seemed chronic with a definite tendency to heal. This case is characterized by a certain definite chronicity. That the process at one time was exudative is indicated by the presence of scar-like areas in the membranes and thickening with hyalinization of the walls of the blood vessels. It may be concluded that tuberculous meningitis may heal, depending on the nature of the infection. It seems that this curable form of meningitis has occurred largely in persons who have suffered from chronic and relatively benign forms of tuberculosis. While about 60 per cent of all cases of tuberculous meningitis occur in the first two years of life and quite regularly result in death, the cases with recovery have occurred in older children and in adults. Tuberculous meningitis may heal without serious defects even when extensive lesions have formed.—*The Curability of Tuberculous Meningitis, F. Harbitz, Am. J. M. Sci., February, 1921, clxi, 212.*